

IN THE CLAIMS:

Claims 2, 4, 8, 9, 16, 20, 27, 28, 36, 40, 41, and 43-64 were previously canceled. Claims 1, 21, 23-26, 29, 30, 32, and 66-71 have been canceled herein. Claims 3, 5, 7, 10-12, 18, 22, 31, 33-35, 37, 39, 42, and 72 have been amended herein. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of the Claims:

- 1.-2. (Canceled).
3. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species of any one of claims ~~1, 5, or 6~~ 5, 6, or 22, wherein the *Lactococcus* species is *Lactococcus lactis*.
4. (Cancelled).
5. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species of claim ~~[[1]]~~ 22, wherein said (*thyA*) mutant is transformed with a transforming plasmid, wherein said transforming plasmid does not encode an active thymidylate synthase.
6. (Previously presented) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species of claim 5, wherein the transforming plasmid comprises the gene encoding a heterologous therapeutic molecule.
7. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species of any one of claims ~~1, 5, or 6~~ 5, 6, or 22, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10.

8-9. (Cancelled).

10. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species of any one of claims ~~1, 5, or 6~~ 5, 6, or 22, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10 and wherein the *Lactococcus* species is *Lactococcus lactis*.

11. (Withdrawn, currently amended) A method for delivering a heterologous therapeutic molecule to a subject, said method comprising administering the transformed strain of *Lactococcus* species of any of claims ~~1, 21, 32, and 67~~ 22, 31, and 33 to the subject.

12. (Currently amended) A composition comprising:
the isolated thymidylate synthase (*thyA*) mutant of claim ~~[[1]]~~ 22.

13. (Previously presented) The composition of claim 65, wherein the transforming plasmid comprises the gene encoding a heterologous therapeutic molecule.

14. (Previously presented) The composition of any of claims 12, 13, or 65, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10.

15. (Previously presented) The composition of any of claims 12, 13, or 65, wherein said *Lactococcus* species is *Lactococcus lactis*.

16. (Cancelled).

17. (Previously presented) The composition of any of claims 12, 13, or 65, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10 and wherein said *Lactococcus* species is *Lactococcus lactis*.

18. (Withdrawn, currently amended) A method of treating inflammatory bowel disease in a subject, said method comprising:

administering to the subject a transformed strain of *Lactococcus* species of any of claims ~~1, 21, 32, and 67~~ 22, 31, and 33.

19. (Withdrawn, previously presented) The method of claim 18, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10.

20.-21. (Canceled).

22. (Currently amended) An isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species, said *thyA* mutant comprising:

an inactive *Lactococcus* thymidylate synthase gene; and

a gene encoding a heterologous therapeutic molecule;

wherein said parent strain comprises SEQ ID NO: 3 ~~and~~ or SEQ ID NO: 5,

wherein the *thyA* mutant expresses the heterologous therapeutic molecule.

23.-30. (Canceled).

31. (Currently amended) [[The]] An isolated ~~thyA~~-thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species, the *thyA* mutant comprising:

an inactive *Lactococcus* thymidylate synthase gene and a gene encoding a heterologous therapeutic molecule, wherein the inactive *Lactococcus* thymidylate synthase gene has been inactivated by gene disruption;

wherein the parent strain of *Lactococcus* species of claim 1, wherein said parent strain comprises:

SEQ ID NO: 3 or SEQ ID NO: 5, and wherein the *thyA* mutant expresses the heterologous therapeutic molecule.

32. (Canceled).

33. (Currently amended) ~~[[The]]~~ An isolated *thyA*-thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to claim 32, wherein the *thyA* mutant lacks active *Lactococcus* thymidylate synthase gene and comprises a gene encoding a heterologous therapeutic molecule, wherein the *thyA* mutant expresses the heterologous therapeutic molecule, and wherein the *thyA* mutant is produced by a process comprising:

providing a parent strain of *Lactococcus* species comprising a thymidylate synthase gene comprising wherein said *Lactococcus* thymidylate synthase gene comprises SEQ ID NO: 3 or SEQ ID NO: 5; and

altering by gene disruption the *Lactococcus* thymidylate synthase gene of the parent strain so as to inactivate the thymidylate synthase encoded thereby.

34. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to claim ~~32~~ 33, wherein the gene encoding the heterologous therapeutic molecule is integrated within, or replaces at least a part of the thymidylate synthase gene of said parent strain.

35. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to any of claims ~~[[32]]~~ 33, 34, 37 or 38, wherein the *Lactococcus* species is *Lactococcus lactis*.

36. (Cancelled).

37. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to claim ~~[[32]]~~ 33, wherein said (*thyA*) mutant is transformed with a transforming plasmid,

wherein said transforming plasmid does not encode an active thymidylate synthase.

38. (Previously presented) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to claim 37, wherein the transforming plasmid comprises the gene encoding a heterologous therapeutic molecule.

39. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to any of claims ~~[[32]]~~ 33, 34, 37, or 38, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10.

40-41. (Cancelled).

42. (Currently amended) The isolated thymidylate synthase (*thyA*) mutant of a parent strain of *Lactococcus* species according to any of claims ~~[[32]]~~ 33, 34, 37, or 38, wherein the gene encoding a heterologous therapeutic molecule encodes Interleukin-10 and wherein the *Lactococcus* species is *Lactococcus lactis*.

43.-64. (Cancelled).

65. (Previously presented) The composition of claim 12, wherein said (*thyA*) mutant is transformed with a transforming plasmid, wherein said transforming plasmid does not encode an active thymidylate synthase.

66.-71. (Cancelled).

72. (Withdrawn, currently amended) A method for delivering a heterologous molecule to a human subject, the method comprising administering the *Lactococcus* species of ~~claim 69~~ any of claims 22, 31, and 33 to the human subject.